Claims:

1. A filter adaptation unit suitable for producing a set of
   filter coefficients, said filter adaptation unit
   comprising:

   a) a first input for receiving a sequence of samples of a
   first signal;

   b) a second input for receiving a sequence of samples of
   a second signal, the second signal including a certain
   component which is correlated to the first signal;

   c) a third input for receiving a first set of error
   characterization data elements associated to a first
   set of filter coefficients, the first set of filter
   coefficients being such that when the first set of
   filter coefficients is applied by an adaptive filter
   on the first signal, a first estimate of the certain
   component in the second signal is generated, the
   certain component being correlated to the first
   signal;

   d) a coefficient generation unit operatively coupled to
   said first input and said second input, said
   coefficient generation unit being operative to
   generate a second set of filter coefficients at least
   in part on the basis of said first and second signals;

   e) an error characterization unit operative for
   processing the first signal and the second signal on
   the basis of the second set of filter coefficients to
   generate a second set of error characterization data
   elements associated to the second set of filter
   coefficients;

   f) a selection unit for selecting one of said first set
   of filter coefficients and said second set of filter

coefficients at least in part on the basis of the first set of error characterization data elements and the second set of error characterization data elements;

5   g) an output for releasing a signal indicative of the set of filter coefficients selected by the selection unit.

2. A filter adaptation unit as defined in claim 1, wherein each error characterization data element in the second

10   set of error characterization data elements is associated to a respective frequency band selected from a set of frequency bands.

3. A filter adaptation unit as defined in claim 2, wherein

15   said error characterization unit is operative for:

a) filtering the first signal on the basis of the second set of filter coefficients to derive a second estimate of the certain component in the second signal, the certain component being correlated to the first

20   signal;

b) removing from the second signal the second estimate of the certain component to generate a noise signal;

c) processing the noise signal and the first signal to generate the second set of error characterization data

25   elements.

4. A filter adaptation unit as defined in claim 3, wherein said error characterization unit is operative for:

a) processing the first signal to derive a first set of

30   spectral values, each spectral value in said first set corresponding to a respective frequency band selected from a set of frequency bands;

b) processing the noise signal to derive a second set of spectral values, each spectral value in said second set corresponding to a respective frequency band selected from the set of frequency bands;

5   c) generating the second set of error characterization data elements at least in part on the basis of the first set of spectral values and the second set of spectral values, each error characterization data element being associated to a respective frequency

10   band from the set of frequency bands.

5. A filter adaptation unit as defined in claim 4, wherein said coefficient generation unit is operative for applying a least squares method on the first and second

15   signals to derive the second set of filter coefficients.

6. A filter adaptation unit as defined in claim 5, wherein said error characterization unit is operative for computing a standard deviation data element for each

20   frequency band in the set of frequency bands on the basis of the first signal and the noise signal.

7. A method suitable for producing a set of filter coefficients suitable for use by an adaptive filter, said

25   method comprising:
         a) receiving a sequence of samples of a first signal;
         b) receiving a sequence of samples of a second signal, the second signal including a certain component which is correlated to the first signal;

30   c) providing a first set of error characterization data elements associated to a first set of filter coefficients, the first set of filter coefficients

being such that when the first set of filter coefficients is applied by an adaptive filter on the first signal, a first estimate of the certain component in the second signal is generated, the certain component being correlated to the first signal;

d) generating a second set of filter coefficients at least in part on the basis of said first and second signals, the second set of filter coefficients being such that when the second set of filter coefficients is applied by an adaptive filter on the first signal, a second estimate of the certain component in the second signal is generated, the certain component being correlated to the first signal;

e) processing the first signal and the second signal on the basis of the second set of filter coefficients to generate a second set of error characterization data elements associated to the second set of filter coefficients;

f) selecting one of said first set of filter coefficients and said second set of filter coefficients at least in part on the basis of the first set of error characterization data elements and the second set of error characterization data elements;

g) releasing a signal indicative of the set of filter coefficients selected in f).

8. A method as defined in claim 7, wherein each error characterization data element in the second set of error characterization data elements is associated to a respective frequency band selected from a set of frequency bands.

9. A method as defined in claim 8, wherein said method
   comprises:
   a) filtering the first signal on the basis of the second
5   set of filter coefficients to derive a second estimate
      of the certain component in the second signal, the
      certain component being correlated to the first
      signal;
   b) removing from the second signal the second estimate of
10   the certain component to generate a noise signal;
   c) processing the noise signal and the first signal to
      generate the second set of error characterization data
      elements.

15 10. A method as defined in claim 9, wherein said method
      further comprises:
   a) processing the first signal to derive a first set of
      spectral values, each spectral value in said first set
      corresponding to a respective frequency band selected
20   from a set of frequency bands;
   b) processing the noise signal to derive a second set of
      spectral values, each spectral value in said second
      set corresponding to a respective frequency band
      selected from the set of frequency bands;
25 c) generating the second set of error characterization
      data elements at least in part on the basis of the
      first set of spectral values and the second set of
      spectral values, each error characterization data
      element being associated to a respective frequency
30   band from the set of frequency bands.

11. A method as defined in claim 10, wherein said method
     comprises applying a least squares method on the first
     and second signals to derive the second set of filter
     coefficients.

12. A method as defined in claim 11, wherein said method
     includes computing a standard deviation data element for
     each frequency band in the set of frequency bands between
     the first signal and the noise signal to derive the
     second set of error characterization data elements.

13. A computer readable medium including a program element
     suitable for execution by a computing apparatus for
     producing a set of filter coefficients, the filter
     coefficients being suitable for use by an adaptive
     filter, said computing apparatus comprising:

     a) a memory unit;

     b) a processor operatively connected to said memory unit,
        said program element when executing on said processor
        being operative for:

        i.   receiving a sequence of samples of a first
             signal;

        ii. receiving a sequence of samples of a second
             signal, the second signal including a certain
             component which is correlated to the first signal;

        iii. receiving a first set of error characterization
             data elements associated to a first set of filter
             coefficients, the first set of filter coefficients
             being such that when the first set of filter
             coefficients is applied by an adaptive filter on the
             first signal, a first estimate of the certain
             component in the second signal is generated, the

certain component being correlated to the first signal;

iv. generating a second set of filter coefficients at least in part on the basis of said first and second signals, the second set of filter coefficients being such that when the second set of filter coefficients is applied by an adaptive filter on the first signal, a second estimate of the certain component in the second signal is generated, the certain component being correlated to the first signal;

v. processing the first signal and the second signal on the basis of the second set of filter coefficients to generate a second set of error characterization data elements associated to the second set of filter coefficients;

vi. selecting one of said first set of filter coefficients and said second set of filter coefficients at least in part on the basis of the first set of error characterization data elements and the second set of error characterization data elements;

vii. releasing a signal indicative of the set of filter coefficients selected in vi).

14. A computer readable medium as defined in claim 13, wherein each error characterization data element in the second set of error characterization data elements is associated to a respective frequency band selected from a set of frequency bands.

15. A computer readable medium as defined in claim 14, wherein said program element when executing on said processor being operative for:

a) filtering the first signal on the basis of the second set of filter coefficients to derive a second estimate of the certain component in the second signal, the certain component being correlated to the first signal;

b) removing from the second signal the second estimate of the certain component to generate a noise signal;

c) processing the noise signal and the first signal to generate the second set of error characterization data elements.

16. A computer readable medium as defined in claim 15, wherein said program element when executing on said processor being operative for:

a) processing the first signal to derive a first set of spectral values, each spectral value in said first set corresponding to a respective frequency band selected from a set of frequency bands;

b) processing the noise signal to derive a second set of spectral values, each spectral value in said second set corresponding to a respective frequency band selected from the set of frequency bands;

c) generating the second set of error characterization data elements at least in part on the basis of the first set of spectral values and the second set of spectral values, each error characterization data element being associated to a respective frequency band from the set of frequency bands.

17. A computer readable medium as defined in claim 16, wherein said program element when executing on said processor being operative for applying a least squares method on the first and second signals to derive the second set of filter coefficients.

18. A computer readable medium as defined in claim 17, wherein said program element when executing on said processor being operative for computing a standard deviation data element for each frequency band in the set of frequency bands between the first signal and the noise signal to derive the second set of error characterization data elements.

19. An adaptive system comprising:
   a) a first input for receiving a sequence of samples from a first signal;
   b) a second input for receiving a sequence of samples of a second signal, the second signal including a certain component which is correlated to the first signal;
   c) a filter adaptation unit operatively coupled to said first and second inputs, said filter adaptation unit comprising:
      i. a memory unit for storing a first set of error characterization data elements associated to a first set of filter coefficients, the first set of filter coefficients being such that when the first set of filter coefficients is applied by an adaptive filter on the first signal, a first estimate of the certain component in the second signal is generated, the certain component being correlated to the first signal;

  ii. a coefficient generation unit for generating a
       second set of filter coefficients at least in part
       on the basis of said first signal and second signal,
       the second set of filter coefficients being such
       that when the second set of filter coefficients is
       applied by an adaptive filter on the first signal a
       second estimate of the certain component in the
       second signal is generated, the certain component
       being correlated to the first signal;

  iii. an error characterization unit operative for
       processing the first signal and the second signal on
       the basis of the second set of filter coefficients
       to generate a second set of error characterization
       data elements associated to the second set of filter
       coefficients;

  iv. a selection unit for selecting one of said first
       set of filter coefficients and said second set of
       filter coefficients at least in part on the basis of
       the first set of error characterization data
       elements and the second set of error
       characterization data elements;

  v.   an output for releasing a signal indicative of
       the set of filter coefficients selected by the
       selection unit;

d) an adaptive filter operatively coupled to said first
   input and to the output of said filter adaptation
   unit, said adaptive filter being operative to apply a
   filtering operation to the first signal on the basis
   of the set of filter coefficients received from said
   filter adaptation unit to generate an estimate of the
   component in the second signal, the component being
   correlated to the first signal.

20.   An echo cancellor comprising the adaptive system of
claim 19.

5   21.   A filter adaptation unit suitable for producing a set
of filter coefficients, said filter adaptation unit
comprising:

a) means for receiving a sequence of samples of a first
signal;

10   b) means for receiving a sequence of samples of a second
signal, the second signal including a certain
component which is correlated to the first signal;

c) means for receiving a first set of error
characterization data elements associated to a first

15   set of filter coefficients, the first set of filter
coefficients being such that when the first set of
filter coefficients is applied by an adaptive filter
on the first signal, a first estimate of the certain
component in the second signal is generated, the

20   certain component being correlated to the first
signal, each error characterization data element in
the first set of error characterization data elements
being associated to a respective frequency band
selected from a set of frequency bands;

25   d) means for generating a second set of filter
coefficients at least in part on the basis of said
first and second signals, the second set of filter
coefficients being such that when the second set of
filter coefficients is applied by an adaptive filter

30   on the first signal, a second estimate of the certain
component in the second signal is generated, the

certain component being correlated to the first signal;

e) means for processing the first signal and the second signal on the basis of the second set of filter coefficients to generate a second set of error characterization data elements associated to the second set of filter coefficients, each error characterization data element in the second set of error characterization data elements being associated to a respective frequency band selected from a set of frequency bands;

f) means for selecting one of said first set of filter coefficients and said second set of filter coefficients at least in part on the basis of the first set of error characterization data elements and the second set of error characterization data elements;

g) means for releasing a signal indicative of the set of filter coefficients selected by the selection unit.